| Policy Title : | | |
|---|---|---|
| **Whole Blood Collection** | | |
| **Department** | **Index No.** | **Scope** |
| **Laboratory & Blood Bank** | **LAB-058** | **All Blood Bank staff** |
| **Issue Date** | **Revision NO** | **Effective Date** |
| **07/06/1437** | **3** | **1441/7/19** |
| **Review Due Date** | **Related Standard NO.** | **Page Number#** |
| **1443/7/19** | **CBAHI ( LB.39 )** | **5** |

## 01. Policy:

01.1. Blood collection is performed by complete aseptic methods using a sterile pyrogen free closed system.

01.2. Blood is collected only by well trained personnel working under the direction of a qualified physician.

01.3. Proper guidelines procedures are followed to make the donation process safe for both the donor and the patient.

## 02. Definition :

02.1. Not applicable

## 03. Purpose :

03.1. To ensure the donor and the patient's safety.

## 04. Procedure :

**04.1. Material:**

**Donating Area:**

04.1.1. One scale for body weight

04.1.2. donor chairs

04.1.3. electronic blood collection machines

04.1.4. CPD with SAGM & CPDA-1 collection bags

04.1.5. Tourniquet

04.1.6. Sterile gauze

04.1.7. Alcohol swabs

04.1.8. Rubber squeeze balls

04.1.9. 10ml red top tubes

04.1.10. 4ml lavender top tubes &6 purple top tubes for NAT

04.1.11. Tape (i.e. Dermic Lear)

04.1.12. Povidone iodine swabs

04.1.13. Ammonia

04.1.14. Sharps container for needle disposal

**04.2. Blood Collection:**

04.2.1. Blood Containers:

Whole blood is collected from a donor into a closed sterile, pyrogen free and closed system containing sufficient amount of anticoagulant for the quantity of blood to be collected 63ml of CPD or CPDA-1 anticoagulant.

These whole blood and apheresis products collection sets are equipped with diversion pouch.

04.2.2. Identification:

04.2.2.1. Identification is essential in each step from donor registration to final disposition of each component.

04.2.2.2. A numeric system is used that identifies and relates to, the source donor, the donor record, the specimens used for testing, the collection container and all components prepared from the unit.

04.2.2.3. Extreme caution is necessary to avoid any mix-up or duplication of numbers.

04.2.2.4. Be sure that the processing tubes are correctly numbered and that they accompany the container during the collection of blood.

04.2.3. Arm and collection site preparation for blood collection:

04.2.3.1. The Blood Bank technician examines both arms and chooses a large, firm vein. He will inflate a blood pressure cuff to 40 mmHg or uses a tourniquet for aid. Having the donor open and close the hand a few times is also helpful.

04.2.3.2. The Blood Bank technician releases the pressure while the site is prepared.

**Arm cleansing**

04.2.3.3. The Blood Bank technician scrubs 4 cm area in all directions from intended site with 2% iodine solution or with alcohol swab for 30 seconds. Then applies 10% iodine swab stick, starting at the center with concentric spiral outward for 30 seconds.

04.2.3.4. Before venipuncture, the Blood Bank technician checks the blood bag and the tubing for evidence of leaks, discoloration, particulate contamination.

04.2.3.5. The Blood Bank technician clamps the tubing near the needle before the needle cover is removed.

*Note:* For donor's sensitive to iodine, isopropyl, alcohol swabs can be used. The preferred procedure is 30 second up and down scrub then allow skin to dry. A second scrub is then applied.

**04.3. Phlebotomy and collection of samples:**

The Blood Bank technician will:

04.3.1. Ask the donor to confirm his or her identification and show his ID card.

04.3.2. Prepare the donor's arm as mentioned in number (04.2.3).

04.3.3. Position the bag below level of donor's arm on the electronic blood collection machine and route the tubing through the pinch clamp.

04.3.4. Press clamp before uncapping the needle to prevent air from entering the line.

04.3.5. Reapply tourniquet or blood pressure cuff.

04.3.6. Uncover sterile needle and perform the venipuncture immediately. When the needle position is acceptable push the start button.

04.3.7. Tape the tubing to donor's arm to hold the needle in place and cover the site with sterile gauze.

04.3.8. Ask the donor to open and close hand slowly every 10 to 12 seconds during collection using rubber squeezing balls if available.

04.3.9. Keep the donor under observation throughout the donation process. The donor should never be left unattended during or immediately after donation.

04.3.10. The blood bank technician diverts a minimum of 20 mL of the first part of every blood donation into a side arm pouch then collects serological samples in red topped tube for serology by Architect & in purple 7 ml tube for NAT and another 5 ml EDTA tube for malaria and immune-hematology tests (blood grouping, phenotype, antibody screening tests).

**VOLUME COMPONENT PREPARATION**

| VOLUME | WEIGHT (Gms) | REMARKS |
|---|---|---|
| QNS | less than 413 gm(318 gmblood+95gm bags weight) | discard |
| Low volume | 413:523gm(318:428 gm blood +95 gm bags weight) | PRBCs only |
| Ideal volume | 524:620 gm(429:525 gm blood + 95 gm bags weight) | Separate to its component |
| Heavy unit | more than620 gm(525 gm blood + 95 gm bags weight) | discard |

04.3.11. After collecting samples, the blood bank technician will label the samples by putting the label stickers with the proper serial number next to the donor

04.3.12. Also, the blood bank technician will label all the blood bags (main bag and satellite bags by putting the label stickers with the proper serial number next to the donor

04.3.13. Collection time should not be more than 15 minutes so that coagulation activity is not triggered.(Units requiring more than 10 minutes are not suitable for preparation of platelet or fresh frozen plasma or cryoprecipitate *AHF).*

04.3.14. When the proper blood volume is reached (the machine is automated to collect 450cc) the blood flow is interrupted clamp is automatically closed.

04.3.15. Remove the tourniquet and remove the needle from donor arm. Apply pressure over gauze and ask donor to raise his arm and hold gauze firmly. Give the donor juice and keep him in a reclined position for at least 10-15 minutes under observation.

04.3.16. Seal the tubing and discard needle into a sharp container.

04.3.17. Strip donor bag tubing as quickly as possible using stripper at least twice to prevent clotting of blood in tubing.

04.3.18. Mark the blood collection bag with donation date, time start, time end next to the donor and after the donation.

04.3.19. Seal the tubing into segments using heat sealer.

04.3.20. Record the weight of completed unit which should be 450ml ± 45ml plus weight of container and

anticoagulant which are approximately l00g. Multiply volume of bag by 1.06 g/ml which is the specific gravity for RBCs to get the weight of the bag.

04.3.20. Place blood at appropriate temperature. Donor's blood is kept at 20°C-24°C for preparation of platelets and FFP. This must be within 6 hours after collection of the unit of whole blood.

**04.4. Blood storage:**

04.4.1. Refrigerators for storing blood contain only blood, blood components, reagents for blood bank tests and blood samples from patients and donors.

04.4.2. There are separate refrigerators, clearly designated and labeled for unscreened blood.

04.4.3. The temperature in all areas of the refrigerator is maintained between 1°C and 6°C. All refrigerators in which blood is stored have recording thermometers and audible alarms to warn when abnormal temperatures occur. Temperature charts are dated and any temperature variation from normal should be explained in writing on the chart. The refrigerator contain internal thermometer for monitoring temperatures. The temperatures are recorded daily (every 4 hours).

04.4.4. The audible alarm of any refrigerator in which blood is stored are tested according to the "alarm Check" procedure and results recorded.

04.4.5. Blood does not remain at room temperature unnecessarily. During routine handling of the blood, the Blood Bank technician ensures that blood is kept out of the refrigerator only for short periods of time.

04.4.6. When a refrigerator alarm goes off, observe the following procedures: (Determine if the alarm is due to a power failure or if a malfunction of the refrigerator is occurring. Call facilities and explain, the problem must be corrected immediately. Check the following refrigerators and assure that they are monitored and working properly otherwise the blood should be transferred).

04.4.7. If a refrigerator in which blood is stored should reach 60C, transfer the blood to ensure maximum shelf life, evaluate blood for adverse effects and document corrective action taken.

04.4.8. Frozen components are stored at < -180 C. The freezers have a recording thermometer and the internal temperature is checked weekly. When the power to the freezer is shut off or a malfunction occurs, contact facilities. Prepare to transfer components to another monitored freezer, if necessary. Evaluate plasma for adverse effects and document corrective action taken.

04.4.9. Platelet concentrates are stored at room temperatures of 20 to 24$^0$C for up to 5 days. They are gently agitated on a platelet mixer.

**BLOOD COMPONENTS EXPIRATION:**

| Component | Expiry time |
|---|---|
| **WHOLE BLOOD** | |
| **ADSOL OR SAG** | **35 days** |
| **CPDA-1** | **35 days** |
| **CPD or ACD** | **21 days** |
| **Packed RBCs** | |
| **ADSOL OR SAG** | **42 days** |
| **CPDA-1** | **35 days** |
| **CPD or ACD** | **21 days** |
| **Open pack (spiked unit)** | **24 hours** |
| **Platelets concentrate** | **5 days** |
| **Platelets apheresis** | **5 days** |
| **Fresh Frozen Plasma** | **One year** |
| **Cryoprecipitate** | **One year** |

## 05. Responsibilities :

05.1. All Blood Bank Staff of Al-Qunfudah General Hospital

## 06. Equipment & Forms

06.1. Donor questionnaire Form.

06.2. Donor Records.

06.3. Memo from MOH about the donated blood volume

## 07. Attachment :

07.1. Not applicable

## 08. Reference

08.1. The Technical manual of the American Association of Blood Banks, 2016

08.2. The unified Practical Procedure Manual for Blood Banks in The Arab Countries 2013

## Preparation , Reviewing & Approval Box

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